DETAILED ACTION

Election/Restrictions

Applicant's election of species i, which corresponds to Fig. 1, in the reply filed on 6/23/09 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 22-50 appear to read on the elected invention. No claims are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more nonelected inventions, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22-24, 26, 35, 36, 39, 42, 43, and 45-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaufman (US 5323301).

Regarding independent claim 22, Kaufman discloses an optical imaging device, in particular an objective for semiconductor lithography.

Although Kaufman does not positively recite "an objective for semiconductor lithography imaging," it is first noted that preamble limitations are determined on a the facts of the case, *Catalina Mktg. Int'l v. Coolsavings.com, Inc.*, 289 F.3d 801, 808, 62 USPQ2d 1781, 1785 (Fed. Cir. 2002). MPEP§2111.02. Case law informs us, as also noted at the aforementioned MPEP section: "If the claim preamble, when read in the context of the entire claim, recites limitations of

the claim, or, if the claim preamble is necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). See also *Jansen v. Rexall Sundown, Inc.*, 342 F.3d 1329, 1333, 68 USPQ2d 1154, 1158 (Fed. Cir. 2003). [...] *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In the instant case, no additional or critical information necessary to the claim is imparted by the preamble language because the structure achieving the preambular identification recited in the claim is met by the reference; therefore, the preamble language is not required "to define, in part, the claimed invention," *Catalina* at 1785, and as such need not and will not be be given patentable weight in the claim. Moreover, "for semiconductor lithography" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Kaufman discloses the system having at least one system diaphragm (Figs. 1 and 2: via 18a and 18b), the system diaphragm comprising a multiplicity of mobile plates (18a) which are rotatably mounted (via ring bearing 26), wherein the plates have a spherical curvature (Fig.1; col. 3, lns. 25-27).

Further regarding independent claim 42, all the limitations in common with claim 22 as addressed above, are hereby incorporated herein, the diaphragm having a multiplicity of mobile

plates (18a), a rotational bearing axes of the plates being aligned with a center of curvature (C) of a sphere (Figs. 1, 2; i.e., the rotational bearing axes of the plates coincides with the axes of the rotational bearing 26, the axis being coincident with the 18b and the optical axis), and the sphere determining a surface on which the plates are mobile relative to one another (Figs. 1 and 2; i.e., the shape of the sphere, established at manufacture by the cylinders 20, 22, and curvature of mirror 18, determines the spherical surface on which the plates are relatively mobile since the movement of the plates 18a must remain in congruence with their structure).

Further regarding independent claim 45, all the limitations in common with claim 22 as addressed above, are hereby incorporated herein, the diaphragm in a concave surface of an optical element (Fig. 1: 16), the diaphragm following a curved surface (Fig. 1: 18).

Regarding claim 23, Kaufman further discloses that the rotational bearing axes of the plates are aligned with a center of curvature (C) of a sphere (Fig. 1), and the sphere determines a surface on which the plates are mobile relative to one another (Figs. 1 and 2; i.e., the shape of the sphere, established at manufacture by the cylinders 20, 22, and curvature of mirror 18, determines the spherical surface on which the plates are relatively mobile since the movement of the plates 18a must remain in congruence with their structure).

Regarding claims 24, 43, and 49, Kaufman further discloses the plates are arranged mobile in an overlapping fashion on two spherical surfaces (Figs. 1 and 2: i.e., mobile plates 18a overlap two spherical surfaces, 20 and 22, when they are retracted), whose centers of curvature (C) are identical (Fig. 1; col. 3, lns. 25-27).

Regarding claim 26, Kaufman further discloses that the plates have a high stiffness (Fig. 1:18; i.e., "high stiffness" is not defined in the specification or preceding claims; therefore, since

there is no specifically measurable standard for "stiffness," and because the cited figure shows a specific shape that does not appear to change easily [as a wet noodle, for example], as described in Kaufman, it is found to be of "high stiffness").

Regarding claims 35 and 48, Kaufman further discloses that rotational bearings (Figs. 1 and 2: 26) with the rotational bearing axes of the plates (Figs. 1, 2; i.e., the rotational bearing axes of the plates coincides with the axes of the rotational bearing 26) are respectively suspended in a diaphragm (Figs. 1, 2; i.e., since the axis is coincident with the 18b and the optical axis), the rotational bearing axes of the plates being alignable with the center of curvature (C) (col. 3, lns. 25-27).

Regarding claim 36, Kaufman further discloses control members (30, 24) are provided for aligning the rotational bearing axes (Fig. 1).

Regarding claim 39, Kaufman does not explicitly disclose tactile or optical measuring methods are provided for measurement when aligning rotational bearing axes of the plates. However, these limitations are directed to method steps of making/measuring the device, and it could have been made using an alternative method such as physical, acoustic, or instrumental measuring. The method limitations are not germane to patentability pursuant to MPEP §2112.02, since it has been held that "'[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.' *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted)."

Regarding claim 46, Kaufman further discloses that the diaphragm follows a spherically curved surface (Figs. 1 and 2: i.e., mobile plates 18a overlap two spherical surfaces, 20 and 22, when they are retracted).

Regarding claim 47, Kaufman further discloses that the diaphragm comprises a multiplicity of plates (18a) which are rotatably mounted (via ring bearing 26).

Claims 40 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Worley (US 5552925).

Regarding independent claim 40, Kaufman discloses a variable system diaphragm (Title) for a microlithographic projection exposure apparatus having a multiplicity of plates (Fig. 2: 208) held in a mobile fashion by means of solid state articulations (col. 4, ln. 4; i.e., micro-motor). Although the claim recites "means of," it is not followed by functional language; subsequent language "solid state articulations" is a sufficiently specific structural requirement to prevent invocation of 35 USC §112, sixth paragraph.

Regarding claim 41, Worley further discloses that the plates (208) are mounted rotationally (col. 5, lns. 1-3) by the solid state articulations (col. 4, ln. 4; i.e., micro-motor).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman (US 5323301).

Regarding claims 25 and 44, Kaufman does not explicitly disclose that the two spherical surfaces (22, 20) have a mutual separation A of a few millimeters, preferably A < 1 mm. However, Figure 1 shows that these elements are in very near proximity. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller,* 105 USPQ 233 (C.C.P.A. 1955). The benefits of a distance range of less than a mm include retention of lubricants and unrestricted elemental articulation.

Therefore, it would have been obvious to an ordinarily skilled artisan at the time of invention to optimize the range of separation between the two spherical surfaces to retain lubricants or to facilitate unrestricted elemental articulation.

Allowable Subject Matter

Claims 27-34, 37, 38, and 50 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 27, 28, 37, and 50, the prior art does not teach or suggest a system diaphragm of multiple, mobile, rotatably mounted plates with spherical curvature including the specific arrangement having means of solid state articulations as set forth in the claimed combination(s).

Although the claim recites "means of" it is not followed by functional language; subsequent language "solid state articulations" is a sufficiently specific structural requirement to prevent invocation of 35 USC §112, sixth paragraph. Because of the non-scalability of "solid state articulations," no anticipation reference or combination of references is found to achieve a predictable result of the claimed invention.

With respect to claims 29-34, these claims depend on claim 28 and are allowable at least for the reasons stated *supra*.

With respect to claim 38, this claim depends on claim 37 and is allowable at least for the reasons stated *supra*.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Doak whose telephone number is (571)272-9791. The examiner can normally be reached on Mon-Thurs: 7:30A-5:00P, Alt Fri: 7:30A-4:00P (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. L. D./
Examiner, Art Unit 2872

/Stephone B. Allen/
Supervisory Patent Examiner, Art Unit 2872